Wild Rice Report

1984

Northwestern Region

Ontario

Ministry of
Natural
Resources

Wild Rice Report

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Northwestern Region

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Ontario
Ministry of
Natural
Resources

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Minister

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ABSTRACT

A 1984 aerial survey of wild rice in the Northwestern Region revealed an estimated 6013 hectares of harvestable stands. Comparatively, this was 1.7 times the area found in a poor crop year (1982), and 0.6 times that of a good crop year (1980).

The estimated harvest of green rice was 182,418 kilograms which was 2.1 times the 1982 harvest and 0.4 times that of 1980. The average price paid for green rice was $3.42/kilogram ($1.55/pound), and totalled $623,870.00 earned by harvesters in this Region.

Good initial germination and plant development reflected the good water levels and lack of previous years' straw mats on existing stands. Rapid water level increases in late June severely affected stands particularly on Rainy Lake and the Lake of the Woods. The crop yield and harvest in Sioux Lookout and Ignace was considered good, and only fair for the other districts.

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1.0 INTRODUCTION

Wild Rice (Zizania acquatica L.) or "man-o-min" as it is called by the Ojibway is a tall acquatic grass which grows in the shallow waters of lakes and streams. It grows naturally throughout most of North America but the largest natural stands in the world are located in Ontario (Lee, 1978), particularly Northwestern Ontario.

Wild Rice has played an important historical role in the survival of the residents and development of this area. Since it was a fairly stable annual food supply, historians believe it enabled the Ojibway to survive harsh winters and to settle and expand their distribution. It was also used as a food staple by early explorers and fur traders and provided Indians with a source of revenue. Even today it is recognized as a valuable food both in terms of nutrition and revenue provided.

Wild rice is a nutritious cereal being high in protein, low in fat and a good source of B vitamins and many common minerals (Agro-Man, 1984). These nutritional advantages, combined with its unique taste, may be why it has attained distinction as a gourmet food of high market value. In 1983 harvesters of this area earned over $250,000.00 and in the good harvest year of 1980 it was worth more than $700,000.00. The harvesting of wild rice still has important cultural values for the Ojibways of the Northwestern Region.

Although wild rice harvest in the Northwestern Region averaged 7633 kg (1976-1983) and was valued at an average of $247,580.00 (1976-1983), the production from natural stands fluctuates markedly. This fluctuating supply prevents the development of stable markets and the expansion of the industry (Lee, 1984; Davis et al., 1981). Other jurisdictions such as California, Minnesota, Saskatchewan and Manitoba each produce more wild rice than Ontario. This relates to extensive research and the successful commercial application of improved varieties and cultivation methods. If natural lake production in Northwestern Ontario is to compete or maintain its place in the market against paddy production, then developments in both research and management must occur to increase the yield and area of wild rice (Lee, 1984).

Major improvements in wild rice management by the Ministry of Natural Resources in Northwestern Ontario have occurred since 1974. Previously management consisted of controlling licenses and summarizing harvest information. Initial wild rice work by P.F. Lee involved development of a management plan (Lee, 1976) determination of ecological factors affecting distribution, (Lee, 1975a and Lee, 1979) evaluation of the effect of water levels (Lee, 1975b) and assessing the feasibility of increasing the supply (Lee, 1975c). In accordance with the management plan, later work in Northwestern Region by P. Sain of the Ministry of Natural Resources involved improved inventory and sampling, identification of major problems and applied research to aid in increased production of wild rice. Improved inventory of the resource was obtained by standardization of the inventory methodology (Sain, 1982) and its expansion to all

districts. This included an evaluation of remote sensing as an alternative inventory technique, determination of stand area (OMNR, 1981), and potential growing area (Sain, 1984a). More reliable estimates of production and losses were obtained by standardizing sampling methodology to evaluate losses due to pests and disease, empty hulls and shattering. The following applied research projects concerning wild rice production were also conducted: evaluation and prediction of losses due to water levels on Lake of the Woods (Sain, 1983b); evaluation of the potential use of a nonshattering variety of wild rice to improve yields by preventing losses due to shattering (Sain, 1984a; Sain, 1984b); and the impact of wild rice straw decomposition (Sain, 1983c; Sain, 1984c). Based on available research, guidelines for assessing the suitability of waters for planting wild rice (Sain, 1981b) were also prepared. Currently research of the growth of the wild rice is being conducted at Lakehead University in Thunder Bay, the results of which will eventually be applied on a commercial basis to increase production in Northwestern Ontario.

Although no research projects were conducted in 1984 by the Ministry of Natural Resources in Northwestern Ontario, Landsat digital mapping of shallow water areas for Fort Frances District and portions of Sioux Lookout District were ordered from the Ontario Centre for Remote Sensing. The resultant maps (1:50,000 scale) will require ground truthing in 1985 and then be available for identification of new potential sites for wild rice introductions. The inventory program for area of wild rice stands and actual harvest was conducted to maintain the trend through

time data base. This report summarizes the results of the 1984 inventory of the wild rice crop of the Northwestern Region of Ontario and provides a comparison to previous years.

2.0 WILD RICE INVENTORY

The wild rice inventory of 1984 consisted of the determination of total rice area and collection of harvest data. This was conducted in all six districts of the Northwestern Region (Figure 1) of Ontario.

2.1 Determination of wild rice area

Each wild rice stand was located and mapped by aerial survey following procedures in the "Guidelines for the Wild Rice Inventory in Northwestern Ontario" (Sain, 1982). Stands were classified by density into high, medium or low categories. In all districts, except Sioux Lookout, the wild rice area in each lake, bay or river was marked onto topographic maps (scale of 2 or 4 inches to a mile) as viewed from the plane. Sioux Lookout District determined their wild rice areas with the use of color infared photography. The film was then projected onto 4" to 1 mile maps and the stands outlined. The total area of the wild rice stands were calculated using either a polar planimeter and/or the Dot grid technique (Dodge et al., 1981). Sparse or low density areas of wild rice were excluded when determining total area.

2.2 Collection of harvest data

Although the Ministry of Natural Resources has control over the wild rice harvesting on Crown Lands by authority of The Wild Rice Harvest Act, manditory reporting of wild rice harvested is not yet legislated in Ontario; therefore, data may be

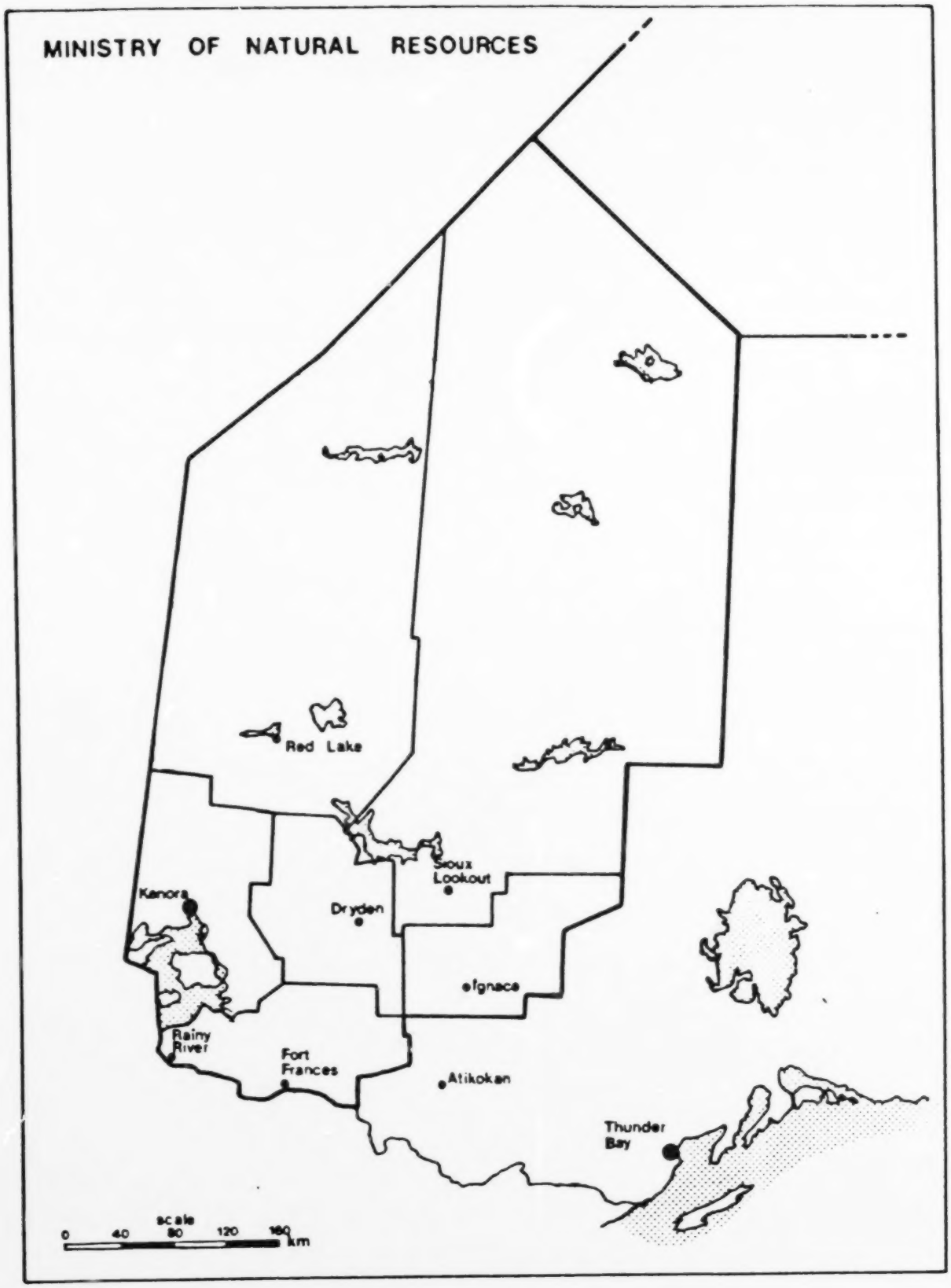
MINISTRY OF NATURAL RESOURCES
Red Lake
Sioux Lookout
Kenora
Dryden
Ignace
Rainy River
Fort Frances
Atikokan
Thunder Bay
scale
0 40 80 120 160 km

FIGURE NO. 1

incomplete. The estimated harvest was based upon the co-operative reports of the wild rice producers and buyers who were contacted before and after the harvest. Dryden District was the exception in that harvest figures were incomplete and were reported too late for inclusion in this report. Production for Dryden was therefore estimated based on crop area and previous production figures. The 1984 estimated harvest is considered representative since co-operation was received from most of the major buyers in the region.

2.3 Water Levels

Data on the mean monthly water levels and its fluctuations on Lake of the Woods were obtained from the annual reports of the Water Survey of Canada (Environment Canada, 1976, 77, 78, 79, 80, 81, 82, 83).

3.0 RESULTS AND DISCUSSION

The conditions were favourable for the vegetative growth of the wild rice crop until June when there was a rapid rise in water levels because of heavy rains. These high water levels had a detrimental influence on the success of the wild rice crop on Lake of the Woods and Rainy Lake. The total area of wild rice has been shown to decrease with increases in mean water levels, especially during the submerged and floating leaf stages of wild rice growth (Thomas and Stewart, 1969; Sain, 1983b; UNIES 1981; and Lee, 1975b). In this region, the floating leaf stage of wild rice growth occurs in early June. Table 1 showing the last eight years of summer mean water levels and their fluctuations on Lake of the Woods, indicates that in June 1984 severe fluctuations of 0.445 metres occurred with an average depth of 322.883 metres. Using the

TABLE 1 FLUCTUATIONS OF WATER LEVELS IN LAKE OF THE WOODS AT KEEWATIN, ONTARIO

A. MEAN WATER LEVELS (metres, above sea level)

YEAR	May	June	July	August	September	Mean
1976	322.462	322.542	322.621	322.597	322.429	322.530 (1058.22 ft.)
1977	322.124	322.246	322.338	322.301	322.447	322.291 (1057.43 ft.)
1978	322.722	323.060	323.176	323.218	323.173	323.070 (1059.99 ft.)
1979	322.957	323.041	323.095	322.971	322.789	322.971 (1059.66 ft.)
1980	322.389	322.349	322.309	322.261	322.225	322.307 (1057.50 ft.)
1981	322.186	322.549	322.824	322.804	322.759	322.624 (1058.53 ft.)
1982	322.883	323.085	323.137	323.179	323.033	323.063 (1059.92 ft.)
1983	322.573	322.685	322.952	322.941	322.906	322.811 (1059.09 ft.)
1984*	322.666	322.883	323.134	323.054	322.802	322.907 (1059.40 ft.)

B. MONTHLY FLUCTUATIONS OF WATER LEVELS (metres)

YEAR	May	June	July	August	September
1976	0.213	0.195	0.094	0.149	0.232
1977	0.192	0.134	0.152	0.137	0.073
1978	0.210	0.323	0.180	0.107	0.213
1979	0.193	0.135	0.107	0.224	0.246
1980	0.116	0.149	0.083	0.123	0.183
1981	0.264	0.432	0.123	0.091	0.165
1982	0.421	0.134	0.164	0.165	0.215
1983	0.143	0.272	0.197	0.124	0.148
1984*	0.184	0.446	0.119	0.213	0.262

* Provisional Data from Water Survey of Canada, Environment Canada.

linear relationship of water level to total rice area (Sain, 1983b) it would be expected that only 1750 hectares of wild rice area would occur on Lake of the Woods. This agrees with the actual area of 1376 hectares determined by aerial inventory which is only 23% of the regions' 1984 wild rice area while in a good year Lake of the Woods can grow 36% of Regions' rice. That area is well below the 5488 hectares of 1977 (a bumper crop year) and partly explains the reason for the 1984 reduced area and harvest for the Kenora District and thus the Region.

Total area of the wild rice in various districts of the Northwest Region are given in Table 2. The 1984 regional total wild rice area of 6013 hectares was 1.7 times more than the poor crop year of 1982 and 0.6 times that of the 1980 good crop year.

Wild rice harvest and dollar value for the districts in the region are given in Table 3. The 1984 wild rice crop was good in Ignace and Sioux Lookout Districts and fair for other districts in the region. The price for green rice improved from an average of $2.50 per kilogram in 1983 to $3.42 per kilogram in 1984, possibly due to increased demand. The 1984 total reported harvest of 182,418 kilograms of green rice was 2.1 times more than in 1982 and 0.4 times that in 1980. With an average price paid of $3.42 per kilogram ($1.55 per pound) of green rice, a total of $623,870.00 was earned by the wild rice pickers in the Northwestern Region in Ontario.

TABLE 2. TOTAL WILD RICE AREA IN VARIOUS DISTRICTS OF THE NORTHWESTERN REGION OF ONTARIO

District/Region	Total Area (Hectares) 1976	1977	1978	1979	1980	1981	1982	1983	1984**
Dryden	205	612	482	672	994	724	216	738	647
Fort Frances	908	1166	346	575	2063	1585	707	1647	1116
Ignace	314	1107	804	809	922	584	624	121	299*
Kenora	6130	7784	255	1194	4139	5301	562	1447	1932
Red Lake	589	2615	2058	756	667	720	206	529	1007
Sioux Lookout	635	1053	1072	952	834	827	1235	581	1012
Northwestern Region	8781 (Riley, 1977)	14337 (Croskery, 1978)	5017 (Sain, 1979)	4958 (Sain, 1980)	9619 (Sain, 1981)	9741 (Sain, 1983)	3550 (Sain, 1983)	5063 (Sain, 1984)	6013*

* Incomplete data

** Includes areas planted and/or private areas: 40.5 ha. in Ignace District & 4.7 ha. in Dryden District

TABLE 3

**TOTAL WILD RICE HARVESTED (kg) IN VARIOUS DISTRICTS
OF THE NORTHWESTERN REGION OF ONTARIO

Year	Dryden	Fort Frances	Ignace	Kenora	Red Lake	Sioux Lookout	Northwestern Region	Avg. Price Per Kilogram $
1963		1608		21352		NA	* 22960	0.84
1964		719		22904		NA	* 23623	0.88
1965		2394		10134		101	12629	1.14
1966		529		17277		290	18096	2.36
1967		16647		207045		9044	232736	2.53
1968		1727		123602		4278	129607	1.43
1969		11473		53173		NA	* 64646	1.04
1970		3405		23995		NA	* 27401	1.34
1971		13804		95260		15830	124894	1.23
1972		55412		404740		35990	496142	1.26
1973	27840	27876	NA	511660	NA	18053	* 585429	1.10
1974	NA	NA	NA	4510	NA	NA	* 4510	1.52
1975	NA	13828	NA	NA	NA	28514	* 42342	1.76
1976	33176	64651	3918	343732	13702	57382	516561	1.56
1977	42696	41847	2191	263612	11666	65068	427080	2.97
1978	26738	NA	6885	11441	497	24787	* 70348	4.40
1979	51241	21700	11614	19847	9911	21246	135559	4.40
1980	75174	54864	16775	197938	26042	69239	440032	1.65
1981	61497	* 9397	17264	125041	24841	72080	* 310120	2.75
1982	* 3525	454	7856	12697	2541	58435	* 85508	2.75
1983	*11565	* 826	14599	51277	6784	20894	* 105945	2.50
1984***	42573+	4042	14647	47213	14389	59554	* 182418	3.42

NA = Not Available

* = Incomplete Data

** = The harvest data of Dryden, Ignace and Red Lake prior to 1973 are included with data of the old Kenora, Fort Frances and Sioux Lookout administrative districts respectively.

*** = The 1984 harvest includes that acknowledged for personnel use, which was 22 kg in Ignace District, 500 kg in Sioux Lookout District and 727 kg in Kenora District.

+ = Harvest figures calculated from crop area and previous 8 years production.

The 1984 total wild rice harvest of about 180,000 kilograms for the Northwestern Region has again been a crop of variable success which is well below the year 2000 target of 1,027,700 kilograms (OMNR, 1982). Although some improvements in harvest efficiency and new planting have occurred in an attempt to improve yields, the reliable and stable production of optimum yields of wild rice have not yet been achieved.

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